

**REMARKS/ARGUMENTS**

Applicant would like to thank the Examiner for the careful consideration given the present application. Claims 1, 2 and 3 have been amended.

Claim 1 stands rejected under 35 U.S.C. 112, second paragraph. Claim 1 has been amended to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Yutaka et al. (JP 2001-086556). For at least the following reasons, the Examiner's rejection is respectfully traversed.

Yutaka does not disclose or teach "charging control means for controlling a charging operation of the rechargeable battery by a different charging control method in accordance with each of the plurality of communication schemas" as recited in claim 1.

Yutaka discloses PDC protocol control section 101 and a PHS protocol control section 102 in a portable telephone (para. 0014, Fig. 1). The Yutaka telephone calculates the remaining battery quantity based on the PDC/PHS protocol and *displays* the results based on PDC or PHS on the telephone display 107 (para. 0006–0007, 0008, 0013, and 0015–0016; Fig 1). Then, the user decides to charge the Yutaka telephone based the displayed battery results (para. 0004).

Yutaka does not disclose or teach how the phone *controls* the charging operation of the battery. The Yutaka phone merely *displays* a different remaining battery quantity based on the PDC/PHS protocol, so that a user can decide to charge the phone. Yutaka also does not teach a different charging control method for each communication protocol. Thus, Yutaka fails to disclose or teach charging control means for controlling a charging operation of a rechargeable

battery by a different charging control method in accordance with each of the communication schemas. Therefore, Yutaka does not disclose or teach all the elements of the claimed invention.

Further with regards to claim 1, Yutaka does not disclose or teach “charging control method selecting means for selecting the charging control method for charging the rechargeable battery by the charging control means in accordance with the communication schema of communication being performed by the communication means.”

As mentioned previously, the Yutaka telephone calculates the remaining battery quantity based on PDC/PHS protocol and displays the results based on PDC/PHS on the telephone display 107 (para. 0006–0007, 0008, 0013, and 0015–0016; Fig 1). In Yutaka, the user decides to charge the portable telephone based the displayed battery results (para. 0004).

Yutaka does not disclose or teach how the phone controls the charging operation of the battery. The Yutaka phone merely displays the remaining battery quantity based on the PDC/PHS protocol, so that a user can decide to charge the phone. Yutaka also does not teach *selecting* a charging control method for charging the battery based on the communication protocol being performed during communications. Therefore, Yutaka fails to disclose or teach charging control method selecting means for selecting the charging control method for charging a rechargeable battery by the charging control means in accordance with the communication schema of communication being performed by the communication means. Thus, Yutaka does not disclose or teach all the elements of the claimed invention.

Claims 2 and 3 stand rejected under 35 U.S.C. 103(a) as being obvious over Yutaka et al. (JP 2001-086556) in view of Bachner et al. (U.S. Patent No. 6,184,654) and Fujiwara (U.S. Patent No. 6,088,599). For at least the following reasons the Examiner’s rejection is respectfully traversed.

The Office Action on page 5 states:

“Yutaka does not expressly disclose the charging control switches between constant current and constant current/constant voltage charging based on whether TDMA or CDMA communications are occurring; however, such capability is implicit, as hinted at in [para. 007 and 0013].

As mentioned previously for claim 1, the Yutaka telephone calculates the remaining battery quantity based on PDC/PHS protocol and displays the results based on PDC/PHS on the telephone display 107 (para. 0006–0007, 0008, 0013, and 0015–0016; Fig 1). In Yutaka, the user decides to charge the portable telephone based the displayed battery results (para. 0004).

Yutaka does not disclose how the phone controls the charging operation of the battery. The Yutaka phone merely displays a different remaining battery quantity based on the PDC/PHS protocol, so that a user can decide to charge the phone. Thus, Yutaka does not suggest or hint at switching between constant-current/constant voltage charging control when the communication means communicates based on CDMA, and constant-current charging control when the communication means communicates based on TDMA.

With regards to claim 2, none of the references disclose or suggest “wherein, while the communication means communicates based on the TDMA communication schema, the charging control means performs constant-current charging control when a battery voltage of the rechargeable battery detected by the battery voltage detection means is less than a predetermined voltage threshold value, and stops charging operation when a battery voltage of the rechargeable battery detected by the battery voltage detection means is equal to or larger than the predetermined voltage threshold value.” The Office Action cites Fujiwara (in Fig. 2, TDMA processing unit and CPU; first and second constant current circuits 591 and 592; col. 4 lines 22–

30), and Yutaka (in para. 0017, PHS conforms to TDMA; para. 0026; full charge is detected; a specified upper voltage threshold is the standard end to charging operations for voltage controlled charges) as disclosing these elements (Office Action 09/28/2006, pages 4-5).

The Office Action states that in Yutaka the PHS conforms to TDMA. However, para. 0026 in Yutaka is about PDC, in which the battery residue detecting element (A) 103 carries out A/D conversion of the cell voltage according to the timing supplied by the PDC protocol control section 101, and then notifies the result to the battery residue calculating section 105 (para. 15). Therefore, Yutaka fails to disclose or suggest while communicating based on TDMA, the charging control means stops the charging operation when a battery voltage of the rechargeable battery detected by the battery voltage detecting means is equal to or larger than the predetermine voltage threshold value.

Fujiwara only discloses detecting the voltage of the *external power supply*. In Fujiwara, a battery/charging circuit 41/61 is connected to the external power supply (AC/DC) 32/52 to supply electric power to an electric power supply circuit 34/54 upon stoppage of supply of AC electric power (col. 1, lines 45–50, and col. 3, lines 45–53). An AC supply state monitoring circuit 53 is provided between the battery/charging circuit and an electric power supply circuit 54 to monitor a voltage from the external power supply, and the detected result is supplied to a TDMA/TDD processing unit and CPU 56 (col. 3, lines 48–53). In Fujiwara, first and second constant current circuits are merely provided in the telephone line for connection of the speech circuit 38 and the signal line telephone 31 to control the current supplied to the signal line telephone 31 to a constant current during the off-hook (col. 1, lines 55–55, and col. 4, lines 22–30). During a power failure, the Fujiwara TDMA/TDD processing unit and CPU sets the electric

power supplied from the electric power supply circuit to the signal line telephone (col. 4, lines 6–12).

Although Fujiwara discloses a battery/charging circuit, the constant current circuits are only controlling the current supplied to the signal line telephone. Therefore, Fujiwara does not disclose or suggest detecting the voltage of the battery or even if the phone charges the battery. Fujiwara also does not disclose or suggest performing constant-current charging control for the charging operation of the battery. Thus, Fujiwara fails to disclose or suggest while communicating based on TDMA, the charging control means performs constant-current charging control when a battery voltage of the rechargeable battery detected by the battery voltage detection means is less than a predetermined voltage threshold value. Therefore, even if combined, the references do not disclose or suggest all the elements of the claimed invention.

With regards to claim 3, none of the references disclose or suggest “detection timing generation means for generating, in accordance with the communication schema, a timing for detecting a charging current supplied to the rechargeable battery by the charging current detection means *and* a timing for detecting a battery voltage of the rechargeable battery by the battery voltage detection means” as recited in claim 3. The Office Action on page 6 cites Yutaka for disclosing these elements in para. 15.

Yutaka merely discloses that the battery residue detecting element (A) 103 carries out A/D conversion of the cell voltage according to the timing supplied by the PDC protocol control section 101, and then notifies the result to the battery residue calculating section 105 (para. 15).

Yutaka does not disclose or suggest that the PDC protocol control section 101 generates a timing for detecting a charging current supplied to the battery, or that the battery residue detecting element (A) 103 detects a charging current supplied to the battery. Therefore, Yutaka

does not disclose or suggest that the PDC protocol control section 101 generates a timing for detecting a charging current supplied to the battery by the battery residue detecting element (A) 103. Therefore, Yutaka also fails to disclose or suggest detection timing generation means for generating in accordance with the communication schema, a timing for detecting a charging current supplied to a rechargeable battery by the charging current detection means *and* a timing for detecting a battery voltage of a rechargeable battery by the battery voltage detection means. Thus, even if combined, the references do not disclose or suggest all the elements of the claimed invention.

Further with regards to claim 3, none of the references disclose or suggest, “wherein the detection timing generation means generates timings of a predetermined period when the communication means communicates based on the CDMA communication schema, *and* generates timings avoiding a signal transmission timing of the communication means when the communication means communicates based on the TDMA communication schema” as recited in claim 3. The Office Action on page 6 cites Yutaka as disclosing these elements in para. 0015 and 0021 for CDMA and in para. 0025 and 0026 for TDMA.

Yutaka in para. 0015 and 0026 refers only to PDC. Yutaka discloses that the battery residue detecting element (A) 103 carries out A/D conversion of the cell voltage according to the timing supplied by the PDC protocol control section 101, and then notifies the result to the battery residue calculating section 105 (para. 0015). In Yutaka, a control section 106 periodically reads the result of the battery residue detecting element (A) 103 to check whether the charge is completed or if there is a full charge, and to determine the timing to be used as a full charge (para. 0026). Therefore, Yutaka does not disclose or suggest detection timing generation means that generates timings *avoiding* a signal transmission timing of the TDMA protocol.

Therefore, Yutaka also fails to disclose detection timing generation means that generate timings of a predetermined period when the communication means communications based on the CDMA communication schema, *and* generates a charging current detection means for detecting a charging current supplied to the secondary battery. Thus, even if combined, the references do not disclose or suggest all the element of the claimed invention.

Furthermore, there is no suggestion or motivation for one skilled in the art at the time the invention was made to combine Fujiwara and Bachner with Yutaka to arrive at the claimed invention.

The Yutaka telephone calculates the remaining battery quantity based on the PDC/PHS protocol, and then displays the results based on PDC/PHS on the telephone display 107 (para. 0006–0007, 0008, 0013, and 0015–0016; Fig 1). In Yutaka, the user decides to charge the portable telephone based the displayed battery results (para. 0004).

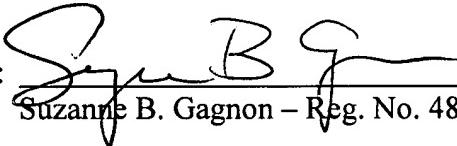
Fujiwara only discloses that an AC supply state monitoring circuit 53 is provided between a battery/charging circuit 61 and an electric power supply circuit 54 to monitor a voltage from the external power supply 52 (col. 3, lines 48–53). In Fujiwara, first and second constant current circuits are merely provided in the telephone line for connection of the speech circuit 38 and the signal line telephone 31 to control the current supplied to the signal line telephone 31 to a constant current during the off-hook (col. 1, lines 55–55, and col. 4, lines 22–30). Although Fujiwara discloses a battery/charging circuit, Fujiwara does not disclose or suggest detecting the voltage of the battery or even if the phone charges the battery. Since Fujiwara constant current elements are only for the signal line and do not pertain any charging operation of the battery, there is no suggestion or motivation to look at or use any of the signal line constant-current elements in Fujiwara to modify the Yutaka phone.

Bachner discloses a holster 20 with a supplemental battery pack 26 used to recharge an onboard battery of a cellular telephone. In Bachner, the power management circuit of the holster 20 performs the constant current, constant voltage charging to the onboard battery of the telephone (col. 6, lines 12–43; col. 7, lines 40–58; col. 8, lines 47–67). Since the Bachner charging control is located in the holster rather than in the phone, there is no suggestion or motivation to use the holster charging control elements in Bachner to modify the Yutaka phone. Reconsideration and withdrawal of the rejection based upon the combination of references is respectfully requested.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 36881.

Respectfully submitted,  
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